

REMARKS

Claims 1-20 are currently pending in the patent application. Applicants have submitted amendments to independent Claims 1, 11 and 20 and to dependent Claim 10 to correct typographical errors therein and to improve the readability thereof. No new matter is introduced by the amendments.

The Examiner has rejected all of the claims under 35 USC 102(e) as anticipated by Davies; and has, alternatively, rejected all of the claims under 35 USC 103 as unpatentable over Davies. For the reasons set forth below, Applicants believe that the claims are patentable over the cited art.

The present invention is directed to a system, method, and program storage device for providing load balancing among a plurality of mirror servers. When a user at a client machine contacts a web site, the web page and a predetermined script are transmitted to the client. The predetermined script is automatically executed at the client to establish connections with each of the plurality of mirror servers which are associated with the web page and which can serve the client's request. As the connections are established between the client and each of the mirror servers, the response times are measured. The client

JP919990263-US1

-7-

selects the mirror server with the most favorable response time, maintaining the connection with the selected mirror server and terminating the connections with the remaining mirror servers. The "load balancing" is done at the client location by evaluating the response times, which are assumed to be a function of current workload.

The Davies patent is directed to workload management among a group of server objects in a client/server network having distributed objects. With reference to Figs. 2 and 3, between the client(s) 21/31 and the server group 23/33 is provided an intermediate entity, either a server process comprising an IP router 22 or a dynamic domain name server (DNS) 32. The intermediate entity performs workload management (i.e., workload balancing) for the server group. A client using the Davies system has an interoperable object reference (IOR) which has previously been exported from the server group. The object reference relates to services available from the server group and includes the object key, which "identifies which object the server should invoke to process the client request" (Col. 5, lines 51-54 and lines 26-29). The IOR includes the IP address of the server process containing an IP router, or in the alternative embodiment the address of the DNS (Col. 5, lines 56-61). The client sends the request, including the address (either

JP919990263-US1

-8-

IP_R for the IP router or SG1.1 for the DNS), the appropriate port number, and the object key as shown in Figs. 4 and 6 to the intermediate entity (IP router or DNS). In the IP router embodiment, the client first contacts the server process containing the IP router...pointed to by the object reference (Col. 6, lines 4-7). The "IP router 22 then uses workload management policies...to make a decision as to which object server in the group should be selected...and then simply forwards on the request from IP_R to the IP address of the selected object server" (Col. 6, lines 4-19 and lines 55-59).

In the alternative embodiment, the DNS performs workload management selecting one of the object servers to serve the request (Col. 7, lines 37-40) and then outputs one of the IP addresses to the client's ORB (Col. 7, lines 47-50), whereupon the client sends the request directly to the selected server object using the address provided by the DNS.

Davies teaches that "[o]nce the connection to the selected server has been established, IIOP requests are redirected to this server for the lifetime of the connection" (Col. 7, lines 14-16 and Col. 8, lines 4-7). Davies also teaches that the IP router can include a

"sticky" port whereby "all requests from a given IP address are redirected to the same server" (Col. 6, lines 38-40).

Applicants respectfully assert that the Davies patent neither teaches nor suggest the invention as claimed. Under the present invention the client sends a request directly to the web site/server group. The web site responds to the client by transmitting the web page and predetermined script. The client executes the predetermined script to establish connections with all of the plurality of mirror servers accessible using that script. Once the connections have been established, the client measures the response times and selects the one of the mirror servers with the most favorable response time. It is the client that evaluates response times as a function of workload and it is the client that makes the selection as to which server will serve the request. The claims expressly recite "automatically executing said script at said client..." (Claims 1-10 and 20) or a client apparatus having "a script executor, for respectively creating connections with each of said plurality of mirror servers..." (Claims 10-19).

The differences between the present invention and the Davies system are many. While under the present invention the client communicates with the web site directly, prior to any workload considerations, Davies requires the client to

contact an intermediate entity. While the present invention expressly provides for the client to perform workload evaluation and server selection, the Davies patent provides that the intermediate server entity (the IP router or the DNS) perform workload balancing. While Davies only permits the client to contact one server in the server group, either by redirection of the request by the IP router or by sending the client request to the address provided by the DNS, the present invention provides for the client to establish multiple connections with all of the appropriate mirror servers. While Davies provides that all IIOP requests are redirected to a selected server for the lifetime of the connection, the present invention allows the client to re-start the script to obtain the highest response connection at any given time.

Applicants respectfully assert that the Davies patent does not anticipate the invention as claimed. It is well established under U. S. Patent Law that, for a reference to anticipate claim language under 35 USC 102, that reference must teach each and every claim feature. Since the Davies patent does not teach sending predetermined script with a web page directly from the server group to the client, does not teach executing script at the client to create connections with a plurality of mirror servers, does not

JP919990263-US1

-11-

teach client measurement of response times, and does not teach client selection of a mirror server having the most favorable response time, it cannot be maintained that the Davies patent anticipate the invention as claimed.

Moreover, Applicants respectfully contend that a rejection under 35 USC 103 cannot be maintained. As established above, Davies does not teach any of the steps of sending predetermined script with a web page directly from the server group to the client, executing script at the client to create connections with a plurality of mirror servers, measuring response times by the client, or client selecting of the mirror server having the most favorable response time. Moreover, Applicants believe that the Davies patent teaches away from the invention as claimed. Davies expressly provides for an intermediate server entity to perform workload management and for a client to only maintain one connection at a time. Further, Davies expressly states that an IP router include a "sticky" port whereby all requests from a given IP address are redirected to the same server (Col. 6, lines 38-40). Providing a dedicated port teaches away from a system and method wherein a user/client may select and get access to any one of a plurality of mirror servers within a web page. It has been established that a reference that teaches away from claim

JP919990263-US1

-12-

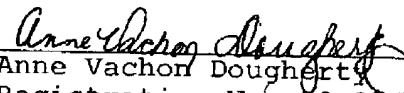
features cannot render the claim obvious (In re Gurley, 27 F.3d 551, 31 USPQ2d 1130 (Fed. Cir. 1994)).

Based on the foregoing amendments and remarks, Applicants respectfully request entry of the amendments, reconsideration of the amended claim language in light of the remarks, withdrawal of the rejections, and allowance of the claims.

Respectfully submitted,

N. Feng, et al

By:


Anne Vachon Dougherty
Registration No. 30,374
Tel. (914) 962-5910